
CONTRIBUTIONS FROM THE LOS ANGELES MUSEUM
- CHANNEL ISLANDS BIOLOGICAL SURVEY

No. 27. FLORA OF THE CHANNEL ISLANDS
NATIONAL MONUMENT

By M. B. DUNKLE

The two islands of Santa Barbara and Anacapa, which form the Channel Islands National Monument, have been studied less than the larger islands from the botanical standpoint and as less material has been published, it seems advisable to prepare this list. The writer has made many trips to Santa Barbara Island but has spent only one week on Anacapa. Richard M. Bond and E. Lowell Sumner have recently collected extensively on both Santa Barbara and Anacapa Islands and Mr. Bond has very generously supplied the writer with complete lists of their collecting as well as various notes on the ecology and taxonomy of the island plants. Lists of Anacapa plants by T. S. Brandegee and Lorenzo G. Gates have been included in Miss Eastwood's recent list of Island plants¹. The collections of Ralph Hoffman and those of Bond and Sumner have been made available for study through the courtesy of the Santa Barbara Museum of Natural History. Dr. P. A. Munz has been of invaluable assistance in the matter of certain identifications. The cooperation of other collectors and staff members of the Los Angeles Museum Channel Islands Biological Survey is also gratefully acknowledged. While the report is reasonably complete at the present time, it is yet probable that additional collecting will yield other reports in the future, at least for Anacapa Island.

¹ Alice Eastwood, "The Islands of Southern California and a List of the Recorded Plants," Leaflets of Western Botany, 3:3, pp. 54-78. July, 1941.



PLATE 26
Santa Barbara Island from the east.



PLATE 27
Anacapa Island from west island.

Santa Barbara Island is a small island lying about 41 miles southwest of Point Vicente. The island contains approximately one square mile, and is surrounded by rugged cliffs. The central part of the Island is traversed by a central, saddle-shaped, north-south ridge from which the surface slopes gently to broad terraces to the east and west. The island has been cultivated and burned over, so that introduced plants occupy much of the terraces and the central ridge. The island is composed largely of volcanic flows, breccia and tuffs. There is a small pleistocene deposit of sediments near the south end at an elevation of about 500 feet. There is no water on the island, and the only mammals are native mice and introduced cats and rabbits. Gulls, cormorants, and pelican nest there in large numbers, while California and stellar sea lions have several rookeries on the narrow beaches. Sea Elephants may occasionally be found there, and sea otters were once numerous but have only been infrequently and rather questionably reported in recent years. The island has no trees or large bushes but *Corcopsis gigantea* dominates much of the island.

Anacapa Island is really a mountain ridge, with only the summit projecting above water, and this narrow ridge is divided by narrow passes into three islands, of which the western is largest and highest. The chain is about five miles long and one half mile wide. Nearly vertical cliffs line the sides so that there are but few landing places. In many places the north and south join in serrate, narrow ridges that are impossible to negotiate. Each of the islands has gently rolling mesas that are covered by grass and low shrubs. The peak on the western island rises to 930 feet. The rocks of the island are mainly intrusives and some volcanic flows, with thick beds of pliocene and pleistocene sediments on the middle island. There is water in only one cave that is accessible only from the sea. The middle island has been grazed at times and some sheep have been on the western island. The eastern island is now overrun by rabbits. There are some very thin sedimentary deposits on the eastern island and considerable water-worn gravel and boulders. The western island has dense suffrutescent growth on the steep slopes and shrub savanna on the terrace. Several groves of small trees are to be found in the northern canyons.

TABLE I
DISTRIBUTION OF ISLAND PLANTS

	TOTAL	NATIVE	EXOTIC	ENDEMIC
Total for both islands	213	145	33	35
Anacapa Island	179	130	25	24
Santa Barbara Island	80	43	21	16
Common to both islands.....	45	27	13	5

The arrangement and nomenclature used in the list follow that used in Munz, *A Manual of Southern California Botany*.

Abbreviations used in the list are as follows:

- A—reported from Anacapa Island.
 B—reported from Santa Barbara Island.
 m—native, occurring also on the mainland.
 i—introduced or exotic plants.
 e—endemic to the Channel Islands and Guadalupe Island.
 abund.—Abundant and usually dominant.
 com.—Common.
 occ.—Occasional.
 loc.—Only one locality known.
 rare—Not found in recent years or very local.

LIST OF REPORTED PLANTS

POLYPODIACEAE

Pityrogramma triangularis (Kauff.) Maxon (Gymnogramme triangularis Kaulf.)	A loc.	m
Pellaea mucronata D. C. Eat.....	A loc.	m
Pellaea andromedaefolia (Kaulf.) Fee.....	A loc.	m
Adiantum Jordani C. Mull.....	A loc.	m
Polypodium vulgare L. var. hesperium (Maxon) Nels. & Macbr.....	A loc.	m
Polypodium californicum Kaulf. var. Kaulfusii D. C. Eat.....	B loc. A loc.	m

NAIADACEAE

Zostera marina L.....	A loc.	m
Phyllospadix Torreyi Wats.....	B loc. A loc.	m

GRAMINEAE

Phalaris minor Retz.....	B loc. A occ.	i
Stipa pulchra Hitchc.	B occ. A com.	m
Stipa lepida Hitchc.....	A com.	m
Muhlenbergia microsperma (DC) Kunth.....	B com. A com.	m
Polypogon monspeliensis (L.) Desf.....	B rare	i
Agrostis verticillata Vill.....	A occ.	i
Avena fatua L.....	B abund. A abund.	i

Melica imperfecta Trin.....	B occ.		m
Distichlis stricta (Torr.) Rydb.			
var. laxa (Vasey) Fawcett & West.	A com.		m
(Distichlis spicata [L.] Greene).			
Lamarckia aurea (L.) Moench.....	B. loc.		i
Poa scabrella (Thurb.) Benth.....		A occ.	m
Festuca octoflora Walt.....		A	m
var. hirtella Piper.....		A	m
Festuca megalura Nutt.....	B com.	A com.	m
Festuca dertonensis (All.)			
Aschers & Graebn.....		A occ.	m
Bromus carinatus Hook. & Arn.....		A com.	m
var. Hookerianus (Thurb.) Shear.		A com.	m
Bromus marginatus Nees.....	B loc.	A occ.	m
Bromus maritimus (Piper) Hitchc.....		A loc.	m
Bromus mollis L.....		A com.	i
(Bromus hordeaceus Auth.)			
Bromus rigidus Roth.....	B loc.	A loc.	i
Bromus rubens L.....	B loc.	A loc.	i
Bromus madritensis L.....		A loc.	i
Bromus Trinii Desv.....		A loc.	i
(Trisetum barbatum Steud.)			
Bromus vulgaris (Hook.) Shear.....	B loc.		m
Bromus laevipes Shear.....		A occ.	m
Bromus sterilis L.....	B loc.		i
Hordeum pusillum Nutt.....		A occ.	m
Hordeum nodosum L.....		A occ.	m
Hordeum murinum L.....	B abun.	A abun.	i
Elymus condensatus Presl.....		A loc.	m
LILIACEAE			
Brodiaea capitata Benth.....	B com.	A com.	m
Zygadenus Fremontii Torr.....		A loc.	m
FAGACEAE			
Quercus tomentella Engelm.		A loc.	e
URTICACEAE			
Urtica gracilis Ait.			
var. holosericea (Nutt.) Jeps.....		A loc.	m
Parietaria floridana Nutt.....		A occ.	m
POLYGONACEAE			
Eriogonum arborescens Greene.....		A com.	e
¹ Eriogonum nudum Dougl.			
var. grande Jeps.....		A com.	e

¹ Called *E. latifolium* Sm. by Yates, and said to approach this form by Hoffman, 1932a. According to the revision of Eriogonum by Mrs. Stokes this form would be *Eriogonum latifolium* Sm. ssp. *grande* (Greene) Stokes.

ERIOGONUM GIGANTEUM Wats. var. COMPACTUM var. nov.

Eriogonum giganteum Wats.
var. *compactum* var. nov. B com. e

This plant formerly reported as *E. giganteum* Wats. has such differing characteristics from the species as to warrant raising it to the varietal rank. The plant differs from the species in being lower, 4-6 dm. tall, much more compacted and with the pubescence at the base of the plant, the lower side of the leaves, and the inflorescence much more densely white-wooly. The peduncle is first 3-branched, then usually 2-branched, with the ultimate branches very short, .2-2.5 cm. long. The inflorescence is compacted into from 3 to 9 very compacted, subcapitate clusters. The involucre are sessile. Dunkle No. 8704.

A specie differt: humilius, 4-6 dm. alti, congestiusque; caulis basi dense albo-lanatis; foliis infra dense albo-lanatis; inflorescentibus dense albo-lanatis, congestis in 3-9 subcapitata cyma; involucris congestibus, sessilibus.

Pterostegia drymarioides F. & M. B com. A com. m
Rumex crispus L. A occ. i

CHENOPODIACEAE

Aphanisma blitoides Nutt. B occ. m
Chenopodium album L. A occ. i
Chenopodium murale L. B com. A com. m
Chenopodium californicum Wats. B com. A com. m
Atriplex Coulteri (Moq.) Dietr. A occ. m
Atriplex Breweri Wats. A com. m
Atriplex rosea L. B occ. i
Atriplex semibaccata R. Brown. B abund. A abund. i
Atriplex pacifica Nels. A occ. m
(*A. microcarpa* [Benth.] Dietr.)
Salicornia subterminalis Parish. A rare m
Suaeda californica Wats. A occ. m
var. *pubescens* Jeps. B abund. m

NYCTAGINACEAE

Abronia maritima Nutt. A rare m
Mirabilis laevis (Benth.) Curran. B. loc. A occ. m

AIZOACEAE

Mesembryanthemum chilense Molina. A rare m
(*M. aequilaterale* Haw.)
Mesembryanthemum crystallinum L. B. abund. A occ. i
Mesembryanthemum nodiflorum L. B. abund. A occ. i

PORTULACACEAE

Calandrinia ciliata (R. & P.) DC.			
var. Menziesii (Hook.) Macbr.....	A	occ.	m
(C. caulescens H.B.K.)			
Calandrina maritima Nutt.....	B.	occ.	m
Montia perfoliata (Donn.) Howell.....	B.	loc.	A occ. m

CARYOPHYLLACEAE

Spergularia macrotheca (Hornem.) Heynh.	B.	occ.	A com. m
Silene gallica L.....	B	com.	A com. i
¹ Silene simulans Greene ?.....			A rare i
Silene laciniata Cav.....			A occ. m
Silene multinervia Wats.....			A occ. m

RANUNCULACEAE

Delphinium Parryi Gray.....			A occ. m
(D. Parryi Gray var. maritimum Dav.)			

BERBERIDACEAE

Berberis pinnata Lag.....			A rare m
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PAPAVERACEAE

Platystemon californicus Benth.....			A occ. m
² var. ciliatus Dunkle	B	loc.	e
(P. aculeolatus Greene)			
(P. setosus Greene)			
Eschscholtzia elegans Greene.....	B	rare	A occ. e
Papaver heterophyllum (Benth.) Greene.....	B	rare	A rare m

CRUCIFERAE

³ Caulanthus lasiophyllus (H. & A.) Payson..			A occ. m
(Thelypodium lasiophyllum [H. & A.]			
Greene)			
var. inalienum Rob.			A rare m
var. ridgidum Rob.....			A rare m
Lepidium lasiocarpum Nutt.....			A occ. m
Lepidium nitidum Nutt.....	B	occ.	A com. m
Lepidium pubescens Desv.....			A occ. i
Erysimum asperum (Nutt.) DC.....			A occ. m
Brassica nigra (L.) Koch			B rare i

¹ Munz reports that *S. simulans* is being given subspecific rank in a study now being made of the genus by Hitchcock and Maguire.

² The writer has found only one locality, with one rather variable variety, but *Greene* collected before the fire of 1918, when another type may have been present.

³ Miss Eastwood's list lists the species and Hoffman's list names the two varieties, not subsequently reported.

CRASSULACEAE

Echeveria Greeni (Rose) Berger.....	B loc.	A com.	e
(Dudleya Greenei Rose)			
(Not Cotyledon lanceolata Wats. as called by Yates.)			
Echeveria albida (Rose) Berger.....	B occ.		e
Tillaea erecta H. & A.....	B com.		m

SAXIFRAGACEAE

Heuchera maxima Greene.....		A occ.	e
Ribes malvaceum Sm.....		A rare	m

ROSACEAE

Rubus vitifolius C. & S.....		A occ.	m
Photinia arbutifolia (Ait.) Lindl.....		A loc.	m
Prunus Lyonii (Eastw.) Sarg.....		A loc.	e
(Not P. ilicifolia var. integrifolia as called in Hoffman's catalog.)			

LEGUMINOSAE

Lupinus truncatus Nutt.....		A occ.	m
Lupinus succulentus Dougl.....		A occ.	m
Lupinus bicolor Lindl.....			
var. umbellatus C. P. Smith.....		A occ.	e
Lupinus albifrons Benth.....		A occ.	m
Melilotus indica All.....		A rare	i
Medicago hispida Gaertn.....	B com.	A com.	i
Medicago sativa L.....		A rare	i
Trifolium tridentatum Lindl.....	B occ.		m
var. aciculare McDer.....		A occ.	m
Trifolium gracilentum T. & G.....		A com.	
var. Palmeri (Wats.) McDer.....	B occ.		e
Trifolium microdon H. & A.....	B com.		m
Lotus strigosus (Nutt.) Greene.....		A occ.	m
¹ Lotus argophyllus (Gray) Greene			
var. ornithopus (Greene) Ottley.....	B occ.		e
Lotus scoparius (Nutt.) Ottley			
var. Veatchii (Greene) Ottley.....		A loc.	e
var. dendroideus (Greene) Ottley.....		A com.	e
Lotus subpinnatus Lag.....		A occ.	m
Astragalus Traskiae Eastw.....	B com.		e
Astragalus Douglasii Gray.....		A occ.	m
Astragalus leucopsis (T. & G.) Torr.....	B ?	A occ.	m
Astragalus Nevinii Gray.....	B ?	A ?	e
Astragalus didymocarpus H. & A.....		A occ.	m

¹The form of *L. argophyllus ornithopus* on Santa Barbara Island has much shorter peduncles than the typical form on Santa Catalina Island. Peduncles of Catalina form 2-4 cm., Santa Barbara form .5-1.5 cm.

<i>Astragalus miguelensis</i> Greene	A occ.	e
<i>Vicia exigua</i> Nutt.....	A occ.	m
<i>Lathyrus strictus</i> Nutt.....	A occ.	m
(<i>L. laetiflorus</i> Greene)		

GERANIACEAE

<i>Erodium botrys</i> Bertol	B rare	i
<i>Erodium moschatum</i> (L.) L'Her.....	B com.	i
<i>Erodium cicutarium</i> (L.) L'Her.....	B abund.	A com. i

ANACARDIACEAE

<i>Rhus integrifolia</i> (Nutt.) B. & W.....	A occ.	m
<i>Rhus diversifolia</i> T. & G.....	A loc.	m

MALVACEAE

<i>Malva parviflora</i> L.....	B abund.	i
<i>Lavatera assurgentiflora</i> Kell.....	A loc.	e

FRANKENIACEAE

<i>Frankenia grandiflora</i> C. & S.....	A com.	m
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CACTACEAE

<i>Opuntia prolifera</i> Engelm.....	B abund.	A occ. m
<i>Opuntia littoralis</i> (Engelm.) Cockerell.....	B abund.	A abund. m
(<i>O. occidentalis</i> var. <i>littoralis</i> Parish)		

ONAGRACEAE

<i>Zauschneria cana</i> Greene.....	A occ.	m
<i>Oenothera cheiranthifolia</i> Hornem	B rare	m

UMBELLIFERAE

<i>Sanicula arguta</i> Greene.....	A occ.	m
<i>Berula erecta</i> (Huds.) Gov.....	A occ.	m
<i>Daucus pusillus</i> Michx.....	A occ.	m

PRIMULACEAE

<i>Dodecatheon Clevelandii</i> Greene.....	A com.	m
<i>Dodecatheon Hendersonii</i> Gray.....	A occ.	m

CONVOLVULACEAE

<i>Convolvulus occidentalis</i> Gray var. <i>macrostegius</i> (House) Munz.....	B abund.	A com. e
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POLEMONIACEAE

¹ <i>Gilia gilioides</i> (Benth.) Greene var. <i>glutinosa</i> (Benth.) Jeps.....	B occ.	m
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¹ Scaree, depauperate, and the identification is uncertain.

<i>Gilia millefoliata</i> F. & M.....	A com.	m
<i>Gilia Nevinii</i> Gray.....	A occ.	e
<i>Gilia multicaulis</i> Benth.....	A occ.	m

HYDROPHYLLACEAE

<i>Nemophila racemosa</i> Nutt.....	B occ.	m
<i>Ellisia chrysanthemifolia</i> Benth.....	A occ.	m
¹ <i>Phacelia floribunda</i> Greene	B com.	e
<i>Phacelia distans</i> Benth.....	A com.	m
<i>Phacelia viscida</i> (Benth.) Torr.....	A occ.	m
<i>Phacelia hispida</i> Gray.....	B occ.	A com. m

BORAGINACEAE

<i>Heliotropium Curassavicum</i> L. var. <i>ocelatum</i> (Heller) Johnston.....	A com.	m
<i>Amsinckia intermedia</i> F. & M.....	B abund.	A com. m
<i>Cryptantha Clevelandii</i> Greene var. <i>hispidissima</i> (Greene) Johnston	B occ.	A occ. m
<i>Cryptantha muricata</i> (H. & A.) Nels. & MacBr. var. <i>Jonesii</i> (Gray) Johnston.....	A occ.	m
<i>Cryptantha maritima</i> Greene.....	B occ.	m
<i>Cryptantha intermedia</i> (Gray) Greene.....	B occ.	m
<i>Cryptantha Traskae</i> Johnston.....	B occ.	e
<i>Plagiobothrys californicus</i> (Gray) Greene var. <i>gracillis</i> Johnston.....	A com.	m
var. <i>fulvescens</i> Johnston.....	A com.	m

LABIATAE

<i>Stachys bullata</i> Benth..... (<i>Stachys acuminata</i> Greene) (<i>Stachys californica</i> Benth.)	A occ.	m
² <i>Salvia mellifera</i> Greene	A com.	m
var. <i>Jonesii</i> Munz.....	A com.	m
<i>Salvia Brandegei</i> Munz.....	A occ.	e

SOLANACEAE

<i>Lycium californicum</i> Nutt.....	B abund.	
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SCROPHULARIACEAE

<i>Linaria canadensis</i> (L.) Dum-Cours. var. <i>texana</i> (Scheele) Pennell.....	A occ.	m
<i>Scrophularia californica</i> Cham. var. <i>catalinae</i> Jeps.....	A occ.	e
<i>Pentstemon cordifolius</i> Benth.....	A rare	m

¹ Only a few of the calyx lobes are pinnate, and in habit resembles *P. distans*.

² While the three forms of *Salvia* can easily be distinguished in the leaf characteristics they are closely related and should probably all be included as varieties of the same species.

¹ Mimulus Flemingii Muntz	A com.	e
Castilleja hololeuca Greene.....	A abund.	e
Castilleja Douglasii Benth.....	A com.	m
(C. parviflora Bong. var. californica Zeile)		
(C. californica Abrams)		

CASTILLEJA ANACAPENSIS spec. nov. A occ. e

This interesting plant was taken in full bloom on both the middle and western islands of the Anacapa group during the last week of August. Its late habit of bloom, its broad leaves, its suffrutescent base, and minor differences in the flower mark it as being very distinct from its nearest relative *C. affinis* H. & A.

It is a suffrutescent herb, with slender stems branching from a woody base, erect or decumbent, 1.5-3 dm. high, sparsely glandular-villous; leaves crowded, broadly oblong to oblong-lanceolate, 1.5-4 cm. long, three-lobed; bracts three-lobed, red, 1.5-2 cm. long; calyx deeply divided below, 1.5-2 cm. long, greenish red, corolla yellowish-green and red, 2.5-3.5 cm. long, galea sparsely puberulent, lower lip exserted. Dunkle, Nos. 7639, Aug. 20, 1940; and 7661, Aug. 26, 1940.

Herba suffrutescens; caulibus ramosis ex caudice ligneo, erectis vel decumbentibus, gracilibus, 1.5-3 dm. altis, leviter glandulose-villosis; foliis confertis, latis vel oblongo-lanceolatis, trilobis; bracteis trilobis, rubris, 1.5-2 cm. longis; calyce partito inferiore, 1.5-2 cm. longo, githaginae; corolla 2.5-3.5 cm. longa, flavovirente rubraque, galea leviter puberula, labro inferiore exserte.

PLANTAGINACEAE

Plantago insularis Eastw.....	B occ.	A com.	m
Plantago Hookerina F. & M. var. californica (Greene) Poe.....		A occ.	m
(P. speciosa Morris)			
Plantago maritima L.....	B occ.		m

RUBIACEAE

Galium aparine L.....	B com.	A com.	i
Galium angustifolium Nutt. var. foliosum Hilend & Howell.....		A com.	e

CUCURBITACEAE

Echinocystis fabaceae Naud.....		A occ.	m
Echinocystis macrocarpa Greene.....	B com.		m

¹ Wide variations in flower color and form are present.

COMPOSITAE

Tribe *Eupatoriaceae*

Brickellia californica (T. & G.)..... A occ. m

Tribe *Astereae*

Grindelia rubricaulis DC. A abund. m

var. *latifolia* (Kellogg) Steyermark

var. *platyphylla* (Greene)

Steyermark A com. m

Aplopappus canus (Gray) Blake..... A abund. e

(*Hazardia cana* [Gray] Greene)

(*H. Traskiae* Eastw.)

(*H. detonsa* Greene)

(*H. serrata* Greene)

Aplopappus venetus (H.B.K.) Blake A com. m

var. *vernioioides* (Nutt.) Munz.....

(*Isocoma vernioioides* Nutt.)

Corethrogyne filaginifolia (H. & A.) Nutt. A com. m

var. *latifolia* Hall..... A abund. e

var. *robusta* Greene..... A abund. e

Erigeron sanctarum Wats..... A occ. m

Erigeron glaucus Ker..... A com. m

Erigeron foliosus Nutt. A occ. m

var. *stenophylla* (Kellogg) Gray.....

Baccharis Douglasii DC..... A occ. m

Baccharis viminea DC..... A occ. m

Baccharis pilularis DC. A com. m

var. *consanguinea* (DC.) C. B. Wolf

Tribe *Inulaceae*

Gnaphalium californicum DC..... A occ. m

(*G. decurrens* Ives var. *californicum*

Gray)

Gnaphalium bicolor Bioletti..... A occ. m

Gnaphalium microcephalum Nutt..... A occ. m

Gnaphalium chilense Spreng..... A occ. m

Tribe *Ambrosiaceae*

Franseria bipinnatifida Nutt..... A occ. m

Tribe *Heliantheae*

Encelia californica Nutt. A com. m

Coreopsis gigantea (Kell.) Hall..... B abund. A abund. m

Tribe *Madicae*

Hemizonia clementina Brandg.....	B abund.	A occ.	e
(H. Streetsii Gray)			
Hemizonia fasciculata (DC.) T. & G.)			
¹ var. ramosissima (Benth) Gray.....	B com.		m

Tribe *Helenicæ*

Perityle Emoryi Torr.....	B abund.	A com.	m
(P. Greenei Rose)			
Baeria hirsutula Greene.....	B abund.		m
Baeria chrysostoma F. & M.			
var. gracilis Piper.....		A abund.	m
Eriophyllum Nevinii Gray.....	B occ.		e
Eriophyllum confertiflorum Gray.....		A com.	m
Eriophyllum staechadifolium Lag.			
var. depressum Greene.....		A com.	e
Amblyopappus pusillus H. & A.....	B abund.	A abund.	m

Tribe *Anthemidæ*

Achillea millefolium L			
² var. lanulosa (Nutt.) Piper.....	B abund.	A com.	m
Artemisia californica Less.....		A abund.	m
var. insularis (Rydb.) Munz.....	B abund.		e

Tribe *Cichoriæ*

Malacothrix saxatilis (Nutt.) T. & G.)			
var. tenuifolia Gray.....		A com.	m
var. implicata (Eastw.) Hall.....		A com.	e
Malacothrix Clevelandii Gray.....		A occ.	m
Malacothrix foliosa Gray.....	B abund.		e
Microseris linearifolia (DC.) Schultz.....		A occ.	m
(Uropappus linearifolius Nutt.)			
Sonchus tenerrimus L.....		A occ.	i
Sonchus oleraceus L.....	B com.	A com.	i

¹ Not typical and its varietal status is yet uncertain.

² Closely approaches A. M. var. *maritima* Jepson in respect to its short internodes and dense leafiness.